ACTL90003 Mathematics of Finance III

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2015, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 3 hours of lectures and workshops per week Total Time Commitment: Estimated total time commitment of 120 hours per semester
Prerequisites:	ACTL90001 Mathematics of Finance I

Subject	Study Period Commencement:	Credit Points:
ACTL90001 Mathematics of Finance I	Semester 1	12.50

Corequisites:	None
Recommended Background Knowledge:	Students should be competent in the use of Excel.
Non Allowed Subjects:	ACTL40004 Advanced Financial Mathematics I

Subject	Study Period Commencement:	Credit Points:
ACTL40004 Advanced Financial Mathematics I	Semester 1	12.50

Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
Coordinator:	Dr Zhuo Jin
Contact:	**zjin@unimelb.edu.au (mailto:zjin@unimelb.edu.au)**
Subject Overview:	The binomial model; risk-neutral pricing of derivative securities; introduction to Ito's formula and SDEs; stochastic asset models; Black-Scholes model; arbitrage and hedging; interest-rate models; actuarial applications.
Learning Outcomes:	On successful completion of this subject a student should be able to: # Demonstrate a knowledge of the properties of option prices, valuation methods and hedging techniques, and be able to apply these; # Show how to use binomial trees and lattices in valuing options; # Apply the Ito calculus; # Derive option prices under the Black-Scholes model; # Describe and apply in simple models, including the binomial model and the Black-Scholes model, the approach to pricing using deflators and demonstrate its equivalence to the risk-neutral pricing approach;

	# Demonstrate a knowledge of models of the term structure of interest rates; # Describe, as a computational tool, the risk-neutral approach to the pricing of zero coupon bonds and interest-rate derivatives for a general one-factor diffusion model for the risk-free rate of interest; # Demonstrate a knowledge of simple models for credit risk.
Assessment:	A 1000 word assignment due second half of semester (10%); A one hour mid-semester test (20%) and Two hour end of semester exam (70%).
Prescribed Texts:	You will be advised of prescribed texts by your lecturer.
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	High level of development: # Written communication; # Problem solving; # Mathematical reasoning; # Simple models of credit risk; # Application of theory to practice; # Interpretation and analysis.
Related Course(s):	Graduate Diploma in Actuarial Science Master of Actuarial Science Master of Commerce (Actuarial Science) Postgraduate Diploma in Actuarial Science